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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of:

M. Anthony Stone, et al.

on HONEYCOMB REMOVAL

Serial No.: 08/327,744

Filed: October 24, 1994

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) Examiner: C. G.

Box AF

**Commissioner of Patents
Washington, D.C. 20231**

APPELLANTS' REPLY BRIEF

This reply brief is in response to the Examiner's Answer dated November 6, 2001. The appeal is taken from the final rejection dated August 15, 2000 in which Claim 1-8 were rejected under 35 U.S.C. § 103(a) as being unpatentable over McComas (U.S. Patent No. 5,167,721) in view of Shiembob, Ryan or Ackerman (U.S. Patent Nos. 4,433,845, 4,409,054, and 4,218,066 respectively), and, conversely, as being unpatentable over Shiembob, Ryan or Ackerman in view of McComas.

Argument

I. The Examiner erred in omitting to acknowledge or comment upon the Inventor's Declaration filed November 15, 2000.

Inventor's Declaration (Exhibit E)¹ contains testimony as to the facts known by the declarant. The Declaration does not contain opinion or legal argument. The

¹ The Exhibits referred to herein are attached to the Appeal Brief dated January 25, 2001.

Inventor's Declaration is testimony and must be weighed accordingly.

Examiner's assertion that Inventor's Declaration is irrelevant because the claims do not require the honeycomb structure to be metal (Examiner's Answer at page 8) is incorrect. The honeycomb structure is disclosed in the application as being metal, the Inventor's Declaration states that such structures are metal, and the reference Ryan supports the assertion that honeycomb is metal. Specifically, the Inventor's Declaration (paragraph 2) clearly states that "[h]oneycomb is a formed metal structure" and Ryan (U.S. Patent No. 4,409,054, Exhibit I) specifically states that the honeycomb structure "consists of a continuation of hexagonal cells ...which are defined by thin metal walls" (col 3, line 7-9). The Examiner has admitted that Ryan discloses a honeycomb formed of metal. (see Examiner's Answer at page 8.) The remaining references, Shiembob (U.S. Patent No. 4,433,845, Exhibit H) and Ackerman (U.S. Patent No. 4,218,066, Exhibit J), are silent as to the composition of honeycomb structures described therein. McComas et al. (U.S. Patent No. 5,167,721, Exhibit G) does not disclose honeycomb at all.

Although the honeycomb seals cited by Examiner may be abradable seals it does not follow that all abradable seals are honeycomb seals, nor does it follow that all abradable seals are equivalent to one another. Nowhere is this equivalency indicated in any of the cited references. McComas et al. discloses seals comprised of coatings, including abradable coatings, which are sintered or sprayed. None of the references disclose sintered or sprayed coatings which are both abradable seals and honeycomb seals. Obviously, sprayed and sintered coatings do not possess honeycomb structures.

The Examiner appears to misunderstand the content of the Inventor's Declaration (paragraph 3). The Examiner asserts that, because McComas et al. clearly teaches the use of a high pressure liquid jet (Examiner's Answer at page 8), the teachings of the prior art refutes the Inventor's Declaration that

"prior to the introduction of high pressure liquid processes, sprayed and sintered coating were typically removed either by a chemical strip or grit blasting; honeycomb was typically removed by grinding and/or chisel"

The point of the Inventor's Declaration is that prior to the existence of the invention of McComas et al. sprayed and sintered coatings were removed by chemical strip or grit blasting and honeycomb was removed by grinding and/or chisel. This difference in

methods of removing the coatings versus methods of removing the honeycomb indicates that a method which would replace chemical strip or grit blasting would not replace methods requiring grinding and/or chisel thereby indicating the unobviousness of the present invention.

Examiner asserts that the Inventor's Declaration (paragraphs 4 and 5) contains merely conclusory statements without any factual evidence in support thereof. The Declarant is supporting with facts within his personal knowledge the conclusion that it was not obvious to use ultra-high pressure water to remove honeycomb as evidenced by the fact that the removal rates initially achieved were unacceptably low and more than two years and additional extensive experimentation to achieve increased removal rates for honeycomb and braze. Both of these factors strongly support the unobvious nature of the present invention.

With respect to Inventor's Declaration (paragraph 6), Examiner assertion regarding long-felt need (Examiner's Answer at page 9) is incorrect because McComas et al. does not address the issue of long-felt need of removing honeycomb structure with high pressure jets, but the removal of coatings thereby. Examiner's assertion that there is no distinction between the invention of McComas et al. (which removes coating materials) and machine techniques commonly used to remove honeycomb seals is not well understood (see Examiner's Answer at page 10). The machining techniques are disclosed in the Inventor's Declaration (at paragraph 3).

II. The Examiner erred in concluding that the phrase "metal honeycomb" was not earlier presented and lacks support in the specification?

Examiner's assertion that the After Final Amendment raised new issues is respectfully traversed. The Specification clearly defines the term "honeycomb" as a metal as discussed in greater detail hereinabove. With the proposed addition of the word 'metal' in independent claim 1 to describe honeycomb, Appellant was merely attempting to clarify that honeycomb is different from the coating materials discussed in the McComas et al. patent, i.e., materials applied by either sintering powder or fibers, or by plasma spraying. Because honeycomb is a metal, with very different erosion characteristics from the coatings discussed in McComas et al., one skilled in the art would not find the method disclosed in McComas et al. obviously applicable to honeycomb removal. The proposed amendment was for clarification solely and in no

wise was seen to modify the scope of the claims.

III. The present invention is not *prima facie* obvious over the combination of McComas and either Shiembob, Ryan or Ackerman

1. There is no suggestion or motivation in the references or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings.

Examiner states that "the suggestion to combine stem [sic] from all the references and the knowledge of the ordinary artisan." (Examiner's Answer at page 13). It is well settled, however, that the level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999). MPEP 2143.01. "There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obviousness was held improper.)

Examiner argues that Appellant's arguments lack merit because Appellant is traversing the teachings on a single reference. The combination of the references, however, is not appropriate as there is no motivation to combine them. Courts have held that components which are functionally or mechanically equivalent are not necessarily obvious in view of one another. See *Smith v. Hayashi*, 209 USPQ 754 (Bd. Of Pat. Inter. 1980); *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). Appellant is merely attacking Examiner's combination of the references and not a single reference among properly combined references. Examiner appears to be arguing that, because the elements are found in the prior art, it is obvious to combine them even though no motivation to do so is present. Specifically, Examiner states that the "test for combining references is what the combination of the disclosures taken as a whole would suggest to one of ordinary skill in the art." (Examiner's Answer at page 15 - 16). This is not the proper test for combining references. Without a motivation to combine references, a rejection based on a *prima facie* case of obviousness is improper even where the combination of the references teach each and every element of a claimed invention. In

re Rouffet, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998).

There is no motivation expressed in any of the references cited by Examiner to combine them to form the present invention. "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." MPEP § 2143.01; see also *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). There must be some suggestion or motivation which is in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify or combine the references. No such suggestion exists in the present circumstance. Furthermore, there is no teaching or suggestion, or combination thereof, cited by the Examiner which address all of the claim limitations of the present invention set forth in claim 1. The teaching or suggestion to make the claimed combination and reasonable expectation of success have not been found in the prior art. Only the Appellants' disclosure provides this information. (See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed Cir. 1991); see also MPEP 706.02 (j)).

In order to support the assertion that the present invention, as claimed, is directed to obvious subject matter, the references must expressly or by implication assert the present invention as claimed; conversely, the examiner must present a convincing argument that the artisan would have found the invention to have been obvious in light of the prior art. *Ex Parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

In response to Appellant's assertion that those skilled in the art at United Technologies Corporation (UTC) would not have concluded the obviousness of the claimed invention, Examiner's asks "[w]hat affidavits or declarations from these UTC artisans has the Appellant proffered? None has been provided." (See Examiner's Answer at page 18). Appellant respectfully points to paragraph 4 of the Inventor's Declaration where the inventor indicates that "[t]wo years of initial work on the present invention demonstrated only a limited capability of ultra-high pressure water to remove honeycomb". The fact that it took well over two years for the inventors to arrive at the present invention even though they were fully aware of the invention of McComas et al. (and the other cited references) strongly indicates that the present invention was not obvious.

2. There was no reasonable expectation of success.

Appellant traverses the Examiner's assertion that "the combined teachings provide more than enough evidence and expectation that liquid jet erosion would work on honeycomb seals". (Examiner's Answer at page 19). Examiner provides nothing in support of this statement other than Appellant's own disclosure. Only Appellant's disclosure indicates that liquid jet erosion would work on honeycomb seals.

3. The prior art references do not teach or suggest all of the claim limitations.

Examiner's assertion that "it is well known to one skilled in the art or to one of ordinary skill art that the teachings of McComas includes having the stream striking the substrate at the base of the coating" (Answer at Page 22) is not accurate. Furthermore, no support for this assertion has been indicated in the cited art. It is clear from the results shown in FIG. 2 of McComas et al. that the invention therein wears the coating off from the top down instead of chipping off the coating from the base up. (See also McComas et al. at column 3, lines 61 - 66.) FIG. 2 clearly indicates that differing pressures remove different amounts of coating and bond coating, and that the removal is from the top surface down. Directing the liquid stream at the base of the coating would cause the coating to come off at the bottom. FIG. 2 would not show gradients of removal of the coating and bond coating but would flake off entire layers of coating instead of wearing away at the upper surface. Additionally, the amount of seal removed in FIG. 2 does not extend all the way to the sides of the sample indicating that the seal is removed, not from the base which would require a liquid stream to be exposed to an edge of the seal, but from a region remote from the edge indicating that the seal is worn away from the top surface by the liquid stream. Furthermore, FIG. 1 shows the stream striking the top surface even though it could easily be directed at the "base" of the coating. The disclosure in McComas et al. specifically states that the liquid stream is directed at the top surface to create top coat erosion (column 4, line 55). The use of the term "simultaneous" in McComas et al. must refer to removal of the coating and bond coat with the same treatment instead of two separate treatments to remove each layer individually.

Examiner repeatedly equates the coating with the honeycomb and the bond coat with braze. These are not equivalent. For the reasons discussed above, it is clear that the coating used in McComas et al. is not the same or analogous to a honeycomb

structure. The coating and bond coat of McComas et al. is more like paint and a primer coat than the metal honeycomb and a braze of the present invention. No where in any of the cited references does a honeycomb **coating** appear to support Examiner's assertion. Furthermore, it is unlikely that such a coating could exist.

Conclusion

In view of the foregoing, Appellants reiterates the request that the Board reverse the Examiner's rejection of claim 1. Since claims 2-8 depend from claim 1 and include all of the limitations of this claim, claims 2-8 are patentable over McComas et al., in view of Shiembob, Ryan, or Ackermann and Shiembob, Ryan, or Ackermann in view of McComas et al. for at least the same reasons discussed above in connection with claim 1. Accordingly, Appellants also request that the Board reverse the Examiner's rejection of dependent claims 2-8.

Appellant believes no additional fee is due, however if this is not the case, please charge any deficiency in fee associated with the Petition and Appeal Brief to our Deposit Account No. 13-0235.

Appellants' Reply Brief is being filed in triplicate.

Favorable consideration is respectfully requested.

Respectfully submitted,

By _____

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